



Embargoed until date of next meeting

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Subject	WESTERN RING ROUTE: WATERVIEW CONNECTION PROJECT

Purpose

- 1 The purpose of this paper is to provide advice on options to construct the connection of SH20, from the termination of the Mt Roskill project, to SH16 at the Waterview interchange to enable the Board to confirm a preferred option for community and stakeholder engagement.

Recommendations

- 2 That the NZ Transport Agency Board:
 - a. (A resolution on a preferred scheme option. This will be addressed at the meeting);
 - b. **requests** staff to report back to the Board in August 2009 with the outcome of the engagement process, including suggested enhancements or amendments to the selected scheme; and
 - c. **resolves** to retain the report in Committee to allow free and frank discussion of issues that affect third party individuals. The report should remain in Committee until the Board's decisions are publicly announced and affected third parties informed.

Background

- 3 At your meeting on 27 March 2009 you received a report relating to the briefing paper being prepared for the Minister of Transport. Following the Board's consideration of this report and the draft briefing paper, the briefing was finalised and submitted to the Minister on 31 March 2009. The Minister is currently reporting on this advice to Cabinet. A copy of the Briefing Paper submitted to the Minister is provided in Attachment A.

- 4 The Ministerial Briefing describes the three routes developed in the recent option investigation process and their costs. It also provides information on the form and cost of potential incremental mitigation works packages.
- 5 This report builds on the information in the Briefing Paper and focuses on the selection of the most appropriate scheme to complete the Waterview Connection project. In this context we have not repeated previous in depth reporting on the strategic context for the project, nor its place in the transport network. In essence, the report addresses the replacement of the proposed twin tunnel option with an appropriate scheme that meets the new policy and fiscal drivers.

Context for decision making

- 6 The Board is required to make transport decisions based on its statutory role established under the Land Transport Management Act and to give effect to the more specific guidance given under the GPS.
- 7 The GPS requires the Board to take account of efficiency and value for money principles which also need to be balanced with the need to be environmentally and socially responsible in its decision making. These factors are important once the scope of the project has been decided and subsequently decisions focus on the form and cost effectiveness of a range of options that meet the required scope. In this case, the functional scope of the road in terms of lane capacity is common to all options. Any scrutiny on decisions would then focus on the prudence of the form of the scheme selected.
- 8 For projects such as this, the basis for deciding between options has been via a decision matrix which balances the most relevant factors impacting on the decision. The Board can test these factors by running sensitivity tests on the various attributes to ensure any decision is robust. The factors previously used to evaluate the bored tunnel have been used again as the basis for assisting to differentiate between the current options.
- 9 It is important to note that for this project there is no existing state highway designation from the proposed Maioro Street interchange to the SH16 designation at Waterview. This means that the Board does not have the perspectives that arise from a completed statutory approval process relating to the appropriate level of noise, visual effects and environmental mitigation required for a project in this urban environment. It is also important to note that this project is very likely to comply with the criteria for applying to have projects "called in" under the RMA.

Programme and funding issues

- 10 These are addressed more fully in the separate paper and presentation that will form part of the meeting agenda.

- 11 The Waterview project connects SH20 to SH16 and finally gives effect to the Western Ring Route (WRR). For this important strategic route to function, it is also necessary to carry out works to SH16 to enable this already heavily used highway to carry even higher traffic volumes.
- 12 The costs of the related SH16 'essential' works were included with the Waterview Connection costs in the Business Case prepared by Treasury and MOT in November 2008. For consistency we have continued to report to the Minister on project costs that combine both the SH20 and the essential SH16 works. All options discussed in this report assume capacity improvement works to SH16 estimated at \$242m (in \$2015 terms). Further work is required to identify the optimal works on SH16 to facilitate and complement the SH20 connection. This will be addressed with you at future meetings in advance of finalising the NLTP.

Scope of the Waterview Connection Project

- 13 Our review of lower costs options to complete the Western Ring Route considered a full range of alternative options for completing the connection of SH20 to SH16. This included all previous and some new options. The investigation focused on finding alternatives to the 2x two-lane tunnel scheme that are cost effective, future proof and able to be consented under the Resource Management Act 1991.
- 14 This criteria eliminated consideration of alignments along the Rosebank peninsula to the Rosebank/Patiki interchanges as these options were more expensive than the 2x two-lane tunnel option.
- 15 In terms of defining the scope of this connection we have assumed it is future proofed to provide network continuity by having the same capacity as the adjacent Mt Roskill section of SH20. The new road would operate and be marked with two lane carriageways in each direction, but with a designation and shoulder widths to enable it to be extended to provide an additional lane in each direction in the future. This could be for general traffic or any form of managed priority lane.
- 16 This future proof design allows for a maximum of two traffic lanes in each direction for traffic entering/leaving SH16 to/from the west. The additional future northbound lane on SH20 allows west bound traffic to be better segregated from traffic travelling to/from the Auckland CBD and Auckland Harbour Bridge.
- 17 This future proof scope is common to all options evaluated. There are no significant issues to distinguish between the options on a functional / capacity basis. It should be noted that operating costs for a completed scheme will be greater for an option containing longer tunnel sections. These costs relate to the lighting, ventilation and fire/life/safety systems that need to be maintained and operated.

- 18 In earlier schemes, considered before the bored tunnel scheme, there were strong views expressed from Auckland City on its desire to have some form of central interchange on this section of SH20 to allow more convenient access to the state highway network, and in the case of Great North Road, to reduce city bound traffic on that road to enable bus priorities and more attractive pedestrian environment to be provided.
- 19 The tunnel scheme could not practicably include such an interchange, and we have retained that scope in developing the current alternative options. For the new options, our preference has been to not include a central interchange because of its close proximity to interchanges at Maioro Street and Waterview. This best preserves the arterial and inter- / intra-regional function of the motorway.
- 20 A return to a surface based solution is anticipated to lead to further dialogue on additional local connections between Great North Road and the motorway. Should this issue arise then we can address it during consultation as well as the statutory approval phase.
- 21 At this stage, the possibility of this issue arising should not influence consideration of one option over another. We can report back to the Board after consultation on this point. However, we will be clear to stakeholders that a central interchange of the scale and functionality of that discussed in 2006 is not affordable.

Description of options

- 22 The Ministerial briefing paper sets out the costs of the surface options on each of the three routes. It also shows the incremental mitigation measures that are possible. In terms of determining 'consentable' schemes that are future proof and cost effective we have established a recommended scope for each route as described below. The costs are consistent with the costs shown in the briefing.
- 23 Through the lengthy investigation process associated with this project we have built up a good understanding of the study area and the construction issues associated with each option. For the Option 2 alignment we had the advantage that this route had been thoroughly investigated as part of the earlier scheme development. Detailed first principle construction estimates were developed in 2007 for various cut and cover schemes on this alignment.
- 24 For options 1 and 3 we have used this detailed knowledge as a base for investigation and developed new estimates for these routes. We have also referenced the actual costs and rates from the adjacent Mt Roskill project, and for the tunnel section on Option 3 we have used comparative data from the tunnel construction on the Northern Gateway project that used a similar tunnelling method.
- 25 All estimates have been developed to provide an 'expected' outturn cost for the works. This 'expected' cost includes an allowance for risks that may be reasonable be expected to arise. We have also assessed the 95th percentile risk which represents the cost that should only be exceeded five times in a hundred. This 95thtile risk is important because it enables people to understand the quantum of total risk for each option in comparison with others. This cost risk can be covered in more detail at the workshop meeting.

- 26 The costs shown below relate to Table 5 (page 21) of the Ministerial Briefing paper. These only show the costs of the SH20 works in \$2008. To compile the full cost of the project the works on SH16 need to be added.

Option 1

- 27 This is a direct route that generally follows the alignment of the 2x two-lane tunnel scheme, but is constructed at the surface. It represents the lowest cost option to complete the route.
- 28 From the termination of SH20, this route runs from the planned Maioro Street interchange, through the Owairaka residential area before crossing over New North Road and the North-western rail line. Through this section, it severs seven local roads and comes within 160m of Owairaka Primary School. The community severance in this area requires new linkages to be built to reconnect communities. This would include local road and pedestrian bridges across the state highway.
- 29 The route then runs to the east of Phyllis Street Reserve where it requires the purchase of a number of residential properties before running in a long bridge through the Oakley Creek valley. It then passes under Great North Road and then into the new interchange at Waterview to connect to SH16.
- 30 The suggested additional mitigation is the additional cost to build a bridge structure with a construction method that has a less severe impact on the Oakley creek environment.
- 31 This recommended scheme has an expected cost of **\$730m** and a 95th percentile cost of **\$890m**.

Option 2

- 32 This route follows the alignment previously developed by Transit NZ for its then preferred 'cut and cover scheme' in 2006. This was a scheme that had significant sections of the route in deep trenches with some sections covered to form tunnels.
- 33 The route runs from the termination of SH20 to the west of Option 1 and in part, it would be constructed in the Alan Wood Reserve open space corridor that has a long standing designation for the Avondale to Southdown rail line, but leased to Auckland City for public open space use. The combined rail and State highway corridor would significantly reduce the current available local open space. The community severance from the open space will require new linkages to be built to reconnect access.
- 34 It then passes across part of the Hendon Avenue and Ennismore Road residential area before crossing over New North Road and the North-western rail line to the east of the 'Pak 'n Save' supermarket.
- 35 Passing through Phyllis Street Reserve, it would displace the Metro soccer and softball clubs. The route bridges Oakley Creek and then requires further property purchases as it runs parallel to Great North Road before passing under Great North Road and into the Waterview interchange.

- 36 Schemes on this route were previously extensively discussed with the community and stakeholders in 2006. This previous engagement led to pressure on Transit NZ to pursue greater undergrounding of various sections of the route in order to reduce the impact on the community and the environment.
- 37 A preferred option for this route would be largely at surface except for a 700m section that can be built under Great North Road (by cut and cover technique). This would avoid the impact on the Oakley Creek environment and the severance of the Waterview community from the Oakley Creek Reserve by a motorway adjacent to a major arterial road.
- 38 This route, with the tunnel section under Great North Road, would have an expected cost of **\$800m** and a 95%tile cost of **\$930m**.

Option 3

- 39 This route runs north to the west of the rail designation in the green corridor referred to as Alan Wood Reserve. The combined rail and State highway corridor would significantly reduce available local open space. The community severance from the open space will require new linkages to be built to reconnect access.
- 40 The proposed scheme would then enter into a tunnelled section south of New North Road. This would consist of two three lane tunnels formed by road header excavation.
- 41 The tunnel would be excavated under Avondale Heights before running along Great North Road to the Waterview interchange. This would be built under Great North Road using a cut and cover construction method. The Avondale Heights area was previously excluded from the study area for the project.
- 42 The Option 3 surface option would have an expected cost of **\$1,050m** and a 95%tile estimate of **\$1,400m**.

Considerations affecting option selection

- 43 This section outlines issues relating to urban design, designation, consenting and property acquisition that affect all options in some way:

Urban Design Considerations

- 44 The impact of any of the options on the existing environment will be contentious. The three route options offer different opportunities to locate the SH20 link. There will be opportunities to further refine the alignment of the preferred route in response to stakeholder input. We will need to proactively address such issues within the engagement and statutory approval phases.
- 45 For the previous tunnel scheme we convened an urban design working group to work through the issues and concerns of the main local authority stakeholders, Kiwi Rail, MOE, HNZ and iwi. This draft plan was taken to the point that it was ready for public comment. We envisage following a similar path for the new route.

- 46 We anticipate that the discussions on urban design will focus on transport network optimisation, minimising community severance, optimising the mitigation of visual and noise impacts, evaluating land use changes around the project, reserve reinstatement and ecological protection and reinstatement.
- 47 For Options 2 & 3 the impacts on the Alan Wood reserve belt would be a focus. For options 1&2 the impacts on residential areas, New North Road and the Phyllis Street Reserve areas would be of concern. For all options the impact on the Stoddard Road 'growth node' Great North Road and Oakley Creek will raise many issues unresolved in previous engagement in 2006 and 2008.
- 48 In summary the key urban design issues that will need to be addressed across the three options are:
- The potential of the Stoddard Road growth node to extend along Richardson Road and to include connections to the future rail station and to residential neighbourhoods west of the alignment is significantly reduced with the at-grade options. This is seen by Auckland City as a risk to the development of this node and therefore to the regional growth strategy.
 - Loss of public open space (even though designated for rail) reduces people's opportunities for both active and passive recreation in an area of Auckland that is less well served with accessible, useable open space than other parts of the isthmus. This loss needs to be seen to be balanced by amenity gains for residents, whether by securing additional land and/or by providing community/recreational services. Option 3 offers such an opportunity where a major contribution to the open space network would be the connection (across the Great North Road corridor) of Herron Park to the Phyllis Street Reserve.
 - Severance of residential neighbourhoods, particularly in Options 1 & 2, limits the potential for people to access existing services and significantly reduces informal (off road) as well as formal connections. Minimising severance and optimising (fully accessible, safe and secure) links across the corridor is needed.
 - Bridging over New North Road (Options 1 & 2) has two potentially negative impacts: reducing the functionality of New North Road at grade to serve a mix of land uses, and introducing an out-of-scale element into the established low scale residential environment. A concept plan would need to be developed with ACC to mitigate impacts and reinstate land post-construction.

Designation and Consenting Issues

- 49 All alignment options represent significant 'consenting and designation' projects. Comparatively, the following observations are made between Options 1, 2 and 3, with respect to consenting/designation.

- 50 Option 1 has not previously been considered as a surface option, but is similar in form and impact to Option 2. Opposition is likely to focus on the designation process and the scheme's significant impact on the Owairaka residential area. As with Option 2 the consideration of mitigation measures related to noise, visual amenity, community severance would be a focus.
- 51 The visual and amenity impacts associated with the bridge over New North Road and either alignment through the residential area, will likely be considered significant and will likely warrant specific mitigation planning and design (including consideration of the bridge form, accessibility and land uses surrounding the alignment). Further consultation with Kiwi Rail may also be required to confirm that there are no adverse impacts on this existing designation.
- 52 The scope of issues for Options 1 and 2 are well understood. For Option 2, earlier assessments and investigations mean that, in most cases, progress has been made with respect to quantifying the impacts and developing strategies for their mitigation and remediation. However, it is anticipated that further consultation and investigation would be required, particularly with Auckland City Council. The alternatives assessment for construction options through this area will likely be required as a section 171 matter (appropriate consideration of alternatives) for designation.
- 53 The visual, amenity impacts associated with the bridge crossing of Oakley Creek and the alignment in the vicinity of the creek and waterfall (particularly in the area between Phyllis Street and parallel to Great North Road), is likely to be potentially significant. There is a high level of stakeholder and community interest in this area and it is anticipated this will be a key area of concern in any submission / public designation process.
- 54 For all options, the impact of land take on open space, particularly in the Alan Wood reserve corridor and the Phyllis Street Reserve area, is likely to be considered 'significant' and will warrant specific mitigation planning, including discussions with Auckland City on replacement reserve land. Again, the alternatives assessment for construction options through this area will likely be required as a section 171 matter for designation.
- 55 The impacts of noise on the 'low ambient noise environment' of Springleigh (New Castle Terrace, Harbutt and Phyllis Street) could be significant and it is likely that significant noise attenuation will be required to meet the current NZTA Noise Guidelines and NZ Standards. Given earlier mitigation planning development, it is considered likely that this attenuation will in turn generate consideration of visual and urban amenity impacts. Similarly, earlier alignment options have raised issues of noise impacts on the Unitec and Mason Clinic sites and this may require further consultation with these stakeholders.
- 56 The anticipated level of public opposition to the options is generally considered to be greater for Option 1 & 2 than for Option 3. This is based on the level of opposition expressed for the alignment originally put forward for Option AW1 and the resulting development of a driven tunnel alignment (partly in response to the concerns raised by the community). The Avondale Heights area was excluded from earlier project study areas, and the effects on these properties will no doubt see strong opposition from this community. Such opposition to any of the alignments is most likely to impact on the designation process for the project.

- 57 Technically, there is a higher uncertainty (and resulting risk) associated with Option 3. From a consenting perspective this relates particularly to groundwater draw downs and associated settlement but also works in the watercourse and floodplain for Oakley Creek. Overall, it is considered that these issues pose greater complexity for the consent requirements usually administered by the regional council. It is anticipated that further technical investigation and planning to address these matters would be required, and this would include consultation with stakeholders particularly with Auckland Regional Council and the Auckland City Council (with respect to the floodplain).
- 58 This report is focussing on comparative issues between the options to assist option selection. At the Waterview interchange there are designation and consenting issues common to all options. The impacts will be similar to those identified for earlier options (including the 2x two-lane bored tunnel alignment option). The scale and number of consents required in the coastal marine area are significant, and there are identified issues relating to both ecological / physical impacts perspective and for the surrounding urban environment (e.g. visual and noise issues).
- 59 In addition to the coastal consents, the cut-cover construction and portal works are likely to require cuts that will intersect the groundwater table (albeit to a lesser extent than the earlier driven tunnel option). These cuts have potential groundwater draw-down and resulting associated settlement impacts. There is a high level of stakeholder and community interest in this area and it is anticipated this will be a key area of concern in any submission / designation process;
- 60 In evaluating options we have attempted to assess the likely extent of mitigation requirements that may arise on each option so that the implications are taken into account as a selection decision is made. We have included indicative local road connections, footbridges, green buffer zones and extensive noise walls/bunds within the three scheme budgets as appropriate. We have tried to ensure that the budget provisions have anticipated the requirements that will emerge as the selected option progresses.

Air emissions

- 61 To address any issues that may arise during the consenting process, it is essential that the NZTA has a clear strategy as to how it will approach the issue of air quality. Although no air discharge consents are likely to be required, the Agency will need to demonstrate that it has given due consideration to any adverse air quality effects and, where appropriate, implemented mitigation measures that are effective but at the same time are not cost prohibitive.
- 62 The relationship between the development and operation of the state highway network and local air quality management is a complex matter. There are a range of issues that need to be considered by the NZ Transport Agency that include:
- ❖ legal and policy obligations;
 - ❖ strategic transport sector direction on emissions issues;
 - ❖ uncertainties associated with the environmental science of air quality;
 - ❖ limited viable mitigation options;
 - ❖ challenging stakeholder engagement and a technically demanding subject matter.

- 63 Such issues are common to most large roading projects. In considering a surface option for the Waterview Connection, air quality as a public health or environmental issue should be no different to any other new road that is proposed to be constructed in a developed urban area.
- 64 For this project the local community has had the opportunity, during consultation on the driven tunnel option, to become very familiar and well informed with air quality management issues associated with the project. The local population has a good understanding as to how potential adverse air quality effects associated with this state highway might be effectively mitigated by a road tunnel with a comprehensive ventilation system.
- 65 The assessment of air quality effects that is required to support the notice of requirement will need to be scientifically robust, transparent and open to scrutiny. However, perhaps the key to managing any air quality issues is the need to ensure that the local community is engaged in meaningful dialogue. It will be essential to explain technical air quality issues as they arise in a clear and easy to understand manner. This will enable perceptions and misunderstanding about air quality effects and expectations about mitigation to be effectively responded to.
- 66 The table below supplements and updates the table in the Ministerial Briefing Paper. The areas shaded in 'green' show a sub-total of properties still to be purchased. The second section of the table shows properties already acquired (sub-totals in 'yellow'). The final total combines both.

Property Requirements by option

Table 1 Property Interests Required – (Updated 4 May 2009)			
Property Acquisition Requirements	Option 1	Option 2	Option 3
		Under GN Rd	with Avondale Heights tunnel and under GN Rd
Residential			
Total Required	381	400	365
Acquired	122	164	126
Outstanding			
Private	196	201	219
HNZ	63	35	20
<i>Sub-total</i>	259	236	239
Commercial			
Total Required	23	28	22
Acquired	2	1	1
Outstanding			
Commercial	9	12	9
Commercial lease	12	15	12
<i>Sub-total</i>	21	27	21

Table 1 Property Interests Required – (Updated 4 May 2009)			
Property Acquisition Requirements	Option 1	Option 2 Under GN Rd	Option 3 with Avondale Heights tunnel and under GN Rd
Crown and Local Govt.			
Total Required	43	67	53
Acquired	1	1	1
Outstanding			
ACC Reserve titles	23	29	19
Ontrack Rail titles	18	36	33
Unitec	1	1	0
<i>Sub-total</i>	42	66	52
Outstanding Tunnel strata titles			
<i>Sub-total</i>	N/A	N/A	111

67 It should be noted that the data in the table relates to property interests. This does not represent the number of buildings affected and is not a useful guide to the number of people that could be displaced.

68 The exact extent of properties acquired and demolished would be finalised once further scheme design, urban design and dialogue with affected communities and stakeholders takes place. For example, additional property acquisition can provide for enhanced buffer areas to reduce the impact of the road on the remaining adjacent properties.

69 Once a scheme is announced there will be concern from property owners, particularly those considering or in the process of selling or buying property. We have to date been concentrating acquisitions around the interchange areas, and these properties will be required which ever option is selected.

70 There are significant community relations and project benefits, if we are able to progress property negotiations and acquisitions as soon as affected parties present themselves to us. Property acquisition is a 'critical path' activity for the project and for a full construction start in 2011 we would need entry and possession of all property by that time. This project will require a concerted property acquisition programme, and we should not dismiss or lose opportunities to acquire properties from the moment the option is announced.

- 71 If Option 3, with a tunnelled section, is selected we have previously developed a good technical and legal basis for purchasing subterranean strata titles for the underground portion of land that the tunnel would pass through. We also have experience of explaining this concept to owners.

Evaluation of options against established criteria

- 72 As stated earlier we have evaluated the options on criteria previously used for the evaluation of the 2x two lane tunnel scheme and the cut and cover schemes that were then being considered in 2007. These criteria were:

- ❖ Cost
- ❖ Network flexibility
- ❖ Physical environmental impacts
- ❖ Social environmental impacts
- ❖ Timeliness

- 73 We have taken the three options, including the suggested mitigation levels shown in the Ministerial Briefing and evaluated each on these criteria.

Cost

- 74 Variables assessed included total cost of construction and property acquisitions, cost risk related to scope change or construction cost uncertainty and operational costs.
- 75 Using these variables Option 3 was the most costly because of the tunnel component of the option. Option 1 was the cheapest. Option 3 has the greatest construction cost risk, but Options 1 & 2 both have a high risk that the scope could increase to include additional mitigation works.
- 76 All tunnel environments have higher costs associated with management and monitoring. Option 3 would have a greater operational management cost than the other options.
- 77 Phyllis Street reserve is located on a closed land fill. Any purchase of this land together with works to disrupt the land fill management could give the NZTA ongoing liabilities. This could impact on Options 1 & 2.

Network flexibility

- 78 Variables in this category included traffic benefits, accident savings and the security of the transport system.
- 79 Option 1 had the lowest impacts while Option 2 and 3 had greater impacts because of the assumed increased accident risks that is statistically associated with tunnel driving environments. A tunnel has greater potential to be closed (e.g. in the event of a fire). Options 2 and 3 include a tunnel section under Great North Road.

Physical environmental impacts

- 80 This category considered land stability, groundwater natural habitats, landscape, contaminated sites and energy efficiency.
- 81 Option 1 and 2 had the greatest effect overall. The both intruded through local streets. Option 1 had greater impact on the landscape around Oakley Creek and Option 2 passes through contaminated areas.
- 82 Option 3 had the greatest effects in relation to land stability, groundwater and energy efficiency but overall had the least effect of any option of the physical environment.

Social environmental impacts

- 83 Variables within this criteria included community linkages, population impacts, health and wellbeing and recreation areas.
- 84 Option 1 had the greatest effects overall, particularly in the area of community linkages, air emissions and noise impacts. Option 2 had the worst impact on recreation and reserves. Option 3 had the least effect in every variable considered under this heading.

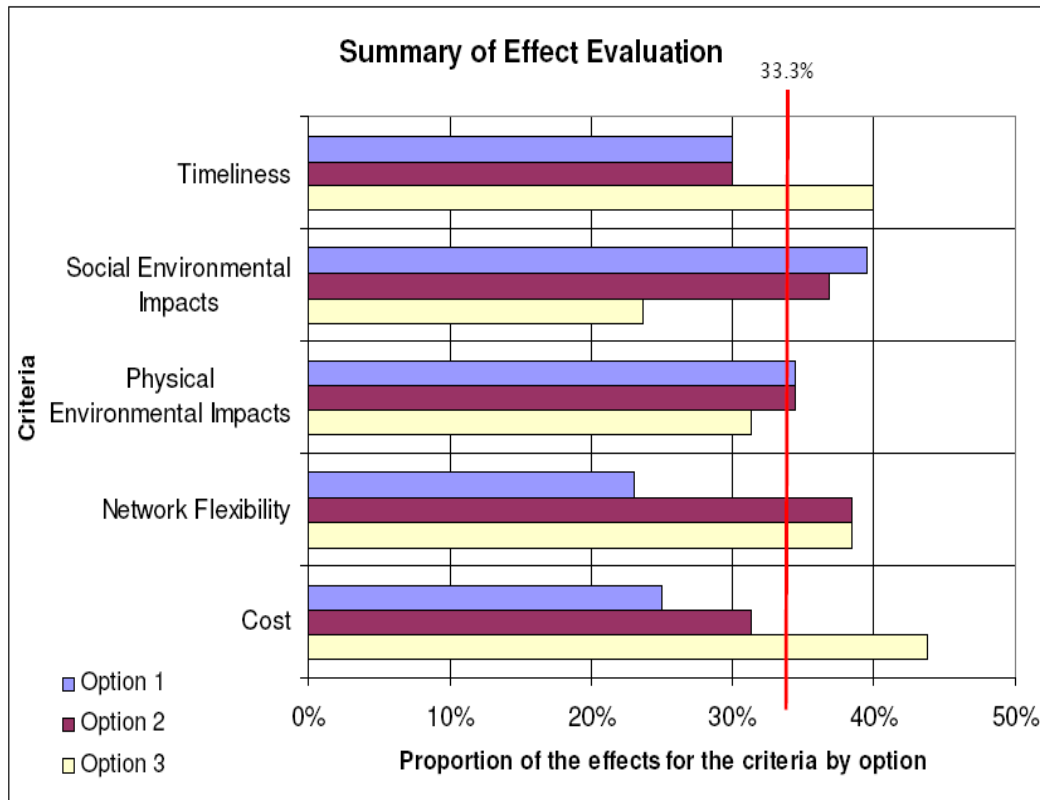
Timeliness

- 85 This heading considered consenting timeframes and the construction programme.
- 86 All options scored the same in relation to consenting processes. Option 3, with the more complex tunnel construction, has a longer construction period (4 ½ years) than Options 1 or 2 (3 years).
- 87 Overall Options 1 & 2 had less adverse timeliness impacts than Option 3.

Summary

- 88 Option 1 and 2 had the equally greatest effects on the physical environment Option 2 had neither the greatest nor the least effects in any other category.
- 89 Option 1 had the worst effects in the area of social impacts.
- 90 Option 3 had the greatest effects in the areas of cost, timeliness and was equally the worse with Option 2 in the area of network flexibility. Option 3 had the least social and environmental impact.
- 91 The following chart illustrates graphically the relative impact of each option on the criteria described above. It visually highlights the differing impacts of each option on a comparable basis.

Graph 1: Summary of Evaluation against Criteria



Note: The methodology used in this graph totals the individual option impact scores for a criterion and gives each option a score for its percentage proportion of the total impact for that criterion. By each score being converted to a percentage, it gives a consistent comparison scale across the criteria. The lower the score the better the schemes match to the criteria. The 33.3% line shows where the bar lines would sit if all had equal impacts.

- 92 The evaluation criteria enable each option to be compared in terms of its relative impact. These criteria relate to outcomes of the project option choice, rather than the overall 'project objectives' that specify the functionality required from the project. All options meet the project objectives (See Para.22 in the Ministerial Briefing).
- 93 It is potentially misleading to aggregate relative scorings on such factors into a single option rating. This requires each criterion to be weighed against the others (e.g. social impact versus timeliness). This can be highly subjective and we have not attempted this. This values 'trade off' can be discussed as part of the option selection process at the meeting.

Selection of a preferred option

- 94 The above assessment indicates that Option 1, while offering the lowest cost option, has the greatest overall adverse environmental impacts both on an existing residential housing area, and the lower reaches of Oakley Creek.
- 95 Some thought has been given to improving the impacts of Option 1 by seeking to relocate the rail designation into the Option 1 corridor and thus release the current Alan Wood Reserve green corridor from the possibility of any future development. However, whilst this could be seen as a valuable outcome to offset the other impacts of this option, this is not recommended as it decreases the certainty of the project and builds significantly increased complexity into the statutory approval process.
- 96 If the northern section of this option route is mitigated to reduce its impact on Oakley Creek by adopting an alignment closer to that of Option 2, then Option 1 loses relative cost advantage and would affect an increased number of properties.
- 97 In terms of surface routes we see Option 1 less desirable than Option 2 and on this basis we conclude that we should eliminate it from further consideration. We now undertake more discussion on issues to consider if selecting between Options 2 and 3.
- 98 Options 2 and 3 are very similar in their southern and northern alignments. We see the essential difference between these options as the form each takes from where the alignments diverge south of New North Road through to their common cut and cover section under Great North Road.
- 99 Option 2 rises off the surface based alignment to bridge over the rail designation, New North Road and the North western rail line before traversing Phyllis Street Reserve and over Oakley Creek to Great North Road. It presents visual and noise effects with an elevated structure and removes housing from the Hendon Avenue area, land from Phyllis Street Reserve and adjacent housing area and decreases the amenity value of the Oakley Creek Reserve.
- 100 Option 3 heads under New North Road and through a tunnel under Avondale Heights before arriving at ground level at Great North Road. It significantly reduces the Alan Wood reserve area that already contains a rail designation, but apart from this, its surface effects are minimal in terms of development impacts. There may be some vibration from tunnel excavation, and there is the potential for ground settlement with tunnel construction of this nature.
- 101 Option 3 is the best mitigated solution but costs in the order of \$256m and has a higher risk profile associated with it associated with the tunnel construction.
- 102 In deciding between Option 2 and Option 3, as they are currently detailed, the Board would need to consider its willingness to pay an extra \$256m to obtain the more mitigated Option 3 scheme. Our conclusion is that the Board would not be willing to pay this amount as it would be able to be used to further the Government's objectives by using the funds elsewhere.

- 103 However, the explicit assumption in the above discussion is that the Option 2 costs accurately represent the scheme that would be developed or approved for development on this alignment. We believe there is significant risk in this assumption. The visual effects and loss of amenity caused by Option 2 from south of New North Road to Great North Road are expected to be subject to community and Auckland City Council submission. During consultation it is expected that there will be strong opposition to this element of the scheme that will seek to have further mitigation measures included.
- 104 The Board would have a variety of choices in this circumstance between agreeing to more mitigation or continuing with the scheme proposed with the final test of appropriateness undertaken by a Board of Inquiry or Environment Court.
- 105 If further mitigation of Option 2 was to be contemplated then it would involve the alignment going under the rail designation, New North Road and the North western rail line in a long 'cut', at a cost of an additional \$207m. This reduces the cost differential between Option 2 and Option 3 to \$49m. Even though the cost/risk profile of Option 3 is still greater, at this cost differential we believe the Board should be willing to pay the additional \$49M for the lesser impacts of Option 3 on the social and physical environment.
- 106 This judgement and consequent decisions are critical, involving significant sums of money. Accordingly, we believe it more appropriate to discuss these issues more fully on the day of the Board meeting before deciding on a preferred option. We will lead a presentation to assist with this.

Other Factors

- 107 As the Board considers its preferred option we think it should be aware of three other things. Firstly, that Option 2 is essentially the same route option that has been consulted on before. This previous consultation led to more undergrounding and eventually the twin tunnels. We will need to be comfortable, that in its final form, Option 2 does address community concerns as far as practicable and affordable.
- 108 Secondly, if the NZTA calls in the project we would want to be confident that we have fairly met the objectives of the RMA. As we use the call-in process more commonly in the future we would want to build the NZTA's reputation as being fair and reasonable in the use of this process.
- 109 Lastly, we do need to think carefully about time/programme. This project will release significant economic benefits to Auckland and we need to deliver these as quickly as possible. The Waterview Connection is fully aligned with the Government's objectives to improve travel time reliability and reduce congestion. However, projects frequently get delayed seeking stakeholder alignment, and lengthy discussion on the form of Option 2 could cause unwanted delay in this regard.

Public and stakeholder engagement

- 110 Once the Board has selected a preferred scheme the next stage of the project is a public engagement phase. The purpose of the stakeholder and community engagement process is to inform people about NZTA's preferred option, respond to their enquiries and issues.
- 111 This process will then provide information to the Board to enable it to confirm the form of the selected option and move to the statutory approval phase.
- 112 We would propose after consultation to seek the Board's endorsement to seek to have the project called in as a project of national significance.
- 113 A copy of the draft communications strategy for the Roads of National Significance is attached (Attachment B), as is the Waterview Connection draft '*Communications and Engagement Strategy*' for this next phase (Attachment C). It builds on the experience from the consultation on the tunnel scheme in early 2008.
- 114 The engagement with stakeholders, especially Auckland City will be critical. The resolution of mitigation requests will be demanding and is unlikely to be concluded easily. The extent of differing perceptions of the appropriateness of a selected scheme will be better judged once the engagement phase is completed.
- 115 We are mindful that this project is one of the roads of national significance identified by Government, and we will need to convey the context within which this project is able to be progressed. This is included in the key messages that we are developing to underpin our communications. We propose to discuss these with you on the day.

Attachments

- 116 There are three attachments to this paper¹
- a. Ministerial Briefing Paper March 2009.
 - b. Draft Communications Strategy for Roads of National Significance
 - c. Western Ring Route: Waterview Connection 'Draft Communications and Engagement Strategy May 2009'

¹ Footnote text